



## Office of Internal Audit Monthly Internal Control Tip

### **Ensure that your area, agency, or department uses adequate spreadsheet controls.**

Throughout Louisville Metro Government Microsoft Excel spreadsheets are increasingly used in performing data collection and analysis for purposes ranging from clerical tasks, budgeting and forecasting, as well as financial and regulatory reporting. Critical information is being derived from analysis and calculations performed using an Excel spreadsheet. In an effort to ensure the integrity and accuracy of the information, it is important to apply proper spreadsheet controls. Spreadsheet controls mitigate the risk of errors in spreadsheet use. Best practices regarding spreadsheet controls are listed below.

**Spreadsheet Design:** Good design practices can accelerate development and reduce mistakes. Some best practices include the following:

- **Plan the spreadsheet first.** Create a plan for the spreadsheet prior to working directly on the computer.
- **Separate inputs from calculations.** Formula cells should generally not contain input data. Instead, input data should appear separately and formulas should reference those cells.
- **Check with a calculator.** Selected cells, usually those involving complicated formulas, can be verified by making a parallel calculation on a hand calculator.
- **Display all formulas.** Formula Auditing Mode in Excel can be used to review formulas.

**Spreadsheet Documentation:** Documentation regarding intended use and the mechanics of the spreadsheet is especially important for subsequent maintenance. Basic pieces of information to document include: assumptions and limitations, data sources, changes, and contact information for the creator. The most popular documentation methods include writing text in the cells of the spreadsheet or using Excel's cell-comment feature. Alternatively, devoting a worksheet entirely to documentation may be appropriate for workbooks containing multiple worksheets.

**Spreadsheet Sharing:** Given that unprotected spreadsheets are vulnerable and that sharing is commonplace, spreadsheet users should consider one or more of the following types of protection:

- **Cell protection.** Worksheets and key calculations can be protected from accidental invasion by users.
- **Password protection.** With little effort, worksheets and workbooks can be protected by the use of passwords.
- **Data validation.** Excel's Data Validation tool prevents the user from entering input data that is outside a specified range.

**Spreadsheet Modification:** When spreadsheets have been used and are then subject to modification, version control becomes a problem. Version control/numbers may be used to document when and why modifications are made.

Note: Spreadsheet Controls noted here were obtained from the *Spreadsheet Engineering Research Project* at the Tuck School of Business at Dartmouth College.

**This tip is brought to you by the Office of Internal Audit. Previous Monthly Internal Control Tips can be found on the Office of Internal Audit's webpage, located [here](#).**